

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-006690**Date Inspected:** 11-May-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 730**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1630**Contractor:** Japan Steel Works**Location:** Muroran, Japan

<b>CWI Name:</b>	Chung Fu Kuan		
<b>Inspected CWI report:</b>	Yes	No	N/A
<b>Electrode to specification:</b>	Yes	No	N/A
<b>Qualified Welders:</b>	Yes	No	N/A
<b>Approved Drawings:</b>	Yes	No	N/A

<b>CWI Present:</b>	Yes	No
<b>Rod Oven in Use:</b>	Yes	No N/A
<b>Weld Procedures Followed:</b>	Yes	No N/A
<b>Verified Joint Fit-up:</b>	Yes	No N/A
<b>Approved WPS:</b>	Yes	No N/A
<b>Delayed / Cancelled:</b>	Yes	No N/A

**Bridge No:** 34-0006**Component:** Tower, Jacking, and Deviation Saddles**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance (QA) Inspector Mr. Art Peterson was present during the times noted above for observations relative to the work being performed in Fabrication shop #4 and the Foundry shop at Japan Steel Works.

**Machine Shop #4:**

Machining Operation of Saddle: Tower Saddle Segment T1-1 (cast section welded to steel section)

The QA Inspector observed that tower saddle segment T1-1 is located in Machine Shop #4 to have the final machining performed. On this date, the QA Inspector observed that the inside of the north cable trough is being milled to final dimensions on the tower saddle segment.

**Fabrication Shop #4:**

Grinding Operation of Saddle: Tower Saddle Segment T1-2 (steel section)

The QA Inspector observed JSW personnel performing the grinding operation on the prepared edges- (bevel face and root face) of the rib plates and stem plates on tower saddle T1-2 (steel section). These areas that are being prepared by the JSW personnel with a grinder were inaccessible areas to be machined. The JSW personnel are grinding to the scribe lines (layout marks and punch marks of the final dimension of the groove area) prior to the fit-up operation of the base plate. The QA Inspector observed that the grinding operation on the rib plates and stem plates were in process at the end of the QA Inspectors' shift.

Welding Operation of Saddle: Tower Saddle Segment T1-3 (cast section being welded to steel section)

The QA Inspector observed the partial-joint penetration groove (fill pass) weld operation on the rib plate (steel

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section) to rib (cast section) of tower saddle segment T1-3. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the weld operation that the minimum preheat temperature of 110 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. T. Ohkawa (03-3091) on weld joint no. 9Y-5U-2 and Mr. Y. Maeyama (94-5234) on weld joint no. 9Y-7U were in compliance with WPS SJ-3012-5 per the FCAW process using (1.6) mm diameter TM 55 electrode in the (1G) flat position. The QA Inspector observed that the partial-joint penetration groove (fill pass) weld operation was in process at the end of the QA Inspectors' shift.

Storage of Saddle: West Deviation Saddle Segment W2-E1 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E1 is located in Fabrication Shop #4. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-E1.

Machine Shop #2:

Machining Operation of Saddle: West Deviation Saddle Segment W2-E2 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E2 is located in Machine Shop #2. On this date, the QA Inspector observed JSW personnel were drilling holes with the aid of a steel template in the top of the trough section on west deviation saddle segment W2-E2.

Fabrication Shop #4:

Grinding Operation of Saddle: West Deviation Saddle Segment W2-E3 (cast section being welded to steel section)

The QA Inspector observed that the JSW personnel were performing the grinding operation around the radius of the cope holes after the partial-joint penetration groove weld operation on the rib plate to stem plate of west deviation saddle segment W2-E3 was completed. The QA Inspector also observed that the JSW personnel were grinding the finished welds to an acceptable profile prior to Quality Control (QC) Inspector Mr. Chung Fu Kuan performing a visual inspection in accordance with the approved shop drawings and AWS D1.5-2002 section 3.6 (weld profiles). The QA Inspector observed that the grinding operation around the cope holes and on the finished welds were in process at the end of the QA Inspectors' shift.

Welding Operation of Saddle: West Deviation Saddle Segment W2-W1 (cast section being fit to steel section)

The QA Inspector observed the partial-joint penetration groove (root pass) weld operation on the rib (cast section) to rib plate (steel section) of west deviation saddle segment W2-W1. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the weld operation that the minimum preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. T. Kawakami (08-5079) on weld joint no. W1Y-4U-1, W1Y-4U-2, W1Y-5U, and W1Y-6U were in compliance with WPS SJ-3011-6 per the SMAW process in the (2G and 3G) horizontal and vertical positions using (4.0) mm diameter E9018 electrode. The QA Inspector observed that the partial-joint penetration groove (root pass) weld operation was in process at the end of the QA Inspectors' shift.

Grinding Operation on Saddle: West Deviation Saddle Segment W2-W2 (steel section welded to cast section)

The QA Inspector observed JSW personnel performing the grinding operation on the end of the rib plates (cast section to steel plate section) where the run off plates were attached during the partial-joint penetration groove weld operation on west deviation saddle segment W2-W2. The run-off plates were initially removed by the gouging (air-carbon-arc method) operation. The QA Inspector observed that the gouging and grinding operation was in process on the edge of the rib plate sections at the end of the QA Inspectors' shift.

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Fit-up Operation of built-up steel plate section of Saddle: West Deviation Saddle Segment W2-W3 (steel section)

The QA Inspector observed the fit-up and tack-weld operation of rib plate's (6-4-end, 6-6, 6-8, 6-10, 6-12, 6-14, and 6-16) were completed on one side of the stem plate to base plate of west deviation saddle segment W2-W3 and of rib plate's (6-5, 6-7, 6-9, 6-11, 6-13, 6-15 and 6-17-end) were completed on the other side of the stem plate to base plate on west deviation saddle segment W2-W3. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-W3.

Foundry Shop:

Storage of Saddle: West Deviation Saddle Segment W2-W2 (cast section)

The QA Inspector observed that west deviation saddle segment W2-W2 (cast section) is located in the Foundry Shop for storage until west deviation saddle segment W2-W2 (steel section) is ready for the fit-up operation. On this date, the QA Inspector observed that no work was performed on west deviation saddle segment W2-W2 (cast section).

NDT Operation on Saddle: West Deviation Saddle Segment W2-W3 (cast section)

The QA Inspector observed Nikko Inspection Services (NIS) QC NDT personnel Mr. H. Kohama (#86) performing the magnetic particle test (MPT) inspection (wet method) on west deviation saddle W2-W3 (cast section) on the as finished surface of level (1) areas as shown on the plans on the inside of the trough section of the west deviation saddle. The NIS NDT personnel Mr. H. Kohama verified the lifting force of the yoke and the sensitivity of the yoke as per ASTM E709 prior to the start of the MPT inspection. The QA Inspector also verified that the bath concentration of the non-fluorescent particles were between (1.2 and 2.4) mL per (100) mL as per ASTM E709 Section 20.6.3 and the manufacturer recommendations. The actual settling volume was recorded at (2.0) mL as measured using a centrifuge tube with a (1.5) mL stem and after allowing the particles to settle for approximately (30) minutes prior to taking the settling volume measurement. The QA Inspector observed that the MPT inspection performed by Mr. H. Kohama on the inside of the trough section was in process at the end of the QA Inspectors' shift.

Grinding Operation on Saddle: East Saddle E2-E1 (cast saddle)

The QA Inspector observed that JSW personnel were performing the grinding operation on the shaped areas on the outside of the trough section and on the rib sections where previously JSW personnel removed the excess cast material by the scarfing operation- (air-carbon-arc method) on the rough casting of east saddle E2-E1 (cast saddle). The purpose of the grinding operation is to profile the areas to a smooth finish and subsequently for the NDT operation. The QA Inspector observed that the grinding operation was in process on east saddle E2-E1 (cast saddle) at the end of the QA Inspectors shift.

Repair Operation on Saddle: East Saddle E2-W1 (cast saddle)

The QA Inspector observed JSW personnel were removing defects from the outside of the trough section at various depths and locations along the trough's length by the gouging operation (air-carbon arc method) on east saddle E2-W1 (cast saddle). The defects were previously marked up by Nikko Inspection Services (NIS) QC NDT Personnel Mr. H. Kohama (#86) from the magnetic particle test (MPT) inspection and the ultrasonic test (UT) inspection performed on the outside of the trough section and rib sections of east saddle E2-W1 (cast saddle). The QA Inspector observed that the gouging operation was in process at the end of the QA Inspectors' shift.

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Machine Shop #2:

Machining Operation of Saddle: West Jacking Saddle (cast saddle)

The QA Inspector observed that the west jacking saddle is located in Machine Shop #2. On this date, the QA Inspector observed that no machining was performed on the west jacking saddle.

Unless otherwise noted, all observations reported on this date appeared to be in general compliance with applicable contract documents.

### Summary of Conversations:

No significant conversations were reported on this date.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, 510 385-5910, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Peterson, Art	Quality Assurance Inspector
<b>Reviewed By:</b>	Lanz, Joe	QA Reviewer

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